

Title Use of Leaf wetness and temperature to time fungicide applications to control anthracnose fruit rot of strawberry in Florida

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Abstract

Anthracnose fruit rot (AFR), caused by *Colletotrichum acutatum*, is a major disease of strawberry in Florida and is generally controlled by weekly fungicide applications. More than 20 applications may be made during the growing season, most commonly using captan and the quinone-oxidoreductase inhibitors. Field experiments were conducted for three seasons on a susceptible and a partially resistant cultivar to evaluate the effectiveness of timing fungicide applications for managing AFR based on a previously published model by Wilson et al. (32) that uses leaf wetness duration and temperature to predict fruit infection by *C. acutatum* under controlled conditions. For most treatments, rules were established where captan was applied when the predicted proportion of fruit infected (INF) from the model exceeded 0.15 and pyraclostrobin was applied when INF exceeded 0.5. For one model-timed treatment where captan and pyraclostrobin were applied before symptoms first appeared in the field, disease control was as good as the treatment where calendar weekly applications were made and the model-timed treatment utilized 47% fewer sprays. In treatments where fungicide application began after symptom appearance, the number of applications was reduced further, but disease control was 40% less effective. Model-timed fungicide treatments that included pyraclostrobin gave better control than the treatments using captan alone. The model relating leaf wetness and temperature to predict AFR infection can be used effectively in a disease-forecasting system to time fungicide treatments and greatly reduce the number of applications without loss of disease control or yield.